

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A semiconductor device, comprising:
an insulating substrate having a surface on which an SiO₂ film is formed; and
a single-crystal silicon substrate bonded with the insulating substrate on a partial region
of the insulating substrate,
wherein[[,]] the single-crystal silicon substrate has a substantially uniform thickness and
has a surface substantially free of damage,
the single-crystal silicon substrate includes an SiO₂ film formed on the surface of the
single-crystal silicon substrate bonded with the insulating substrate, and a BOX layer, a
hydrogen ion implantation section in which distribution of hydrogen ion peaks in the Box
layer, and a single crystal silicon thin film formed on the BOX layer, and has a surface which is
on a single crystal silicon thin film side with respect to the BOX layer and on which an SiO₂ film
formed,
the surface of the insulating substrate, where the SiO₂ film is formed, is bonded with the
surface of the single-crystal silicon substrate, where the SiO₂ film is formed, and
a part of the single crystal silicon substrate is separated at the hydrogen ion implantation
section, and the BOX layer is removed from a remaining part of the single crystal silicon
substrate, the remaining part still being on the insulating substrate after the part is separated.

Claim 2 (Currently Amended): The semiconductor device as defined in claim 1, wherein, in different regions on the insulating substrate, ~~a~~ the single-crystal silicon thin film and a non-single-crystal silicon thin film are provided formed.

Claim 3 (Currently Amended): The semiconductor device as defined in claim 1, wherein[[],] the single-crystal silicon substrate further includes a single-crystal silicon thin film having a thickness of is about not more than about 70nm thick.

Claim 4 (Currently Amended): The semiconductor device as defined in claim 1, wherein[[],] the single-crystal silicon substrate further includes a single-crystal silicon thin film having a thickness of is about not more than about 20nm thick.

Claim 5 (Currently Amended): The semiconductor device as defined in claim 2, wherein[[],] the non-single-crystal silicon thin film comprises is composed of polycrystalline silicon.

Claim 6 (Withdrawn): The semiconductor device as defined in claim 2, wherein[[],] the non-single-crystal silicon thin film comprises is composed of continuous grain silicon.

Claim 7 (Withdrawn): The semiconductor device as defined in claim 2, wherein[[],] the non-single-crystal silicon thin film comprises is composed of amorphous silicon.

Claim 8 (Withdrawn): The semiconductor device as defined in claim 7, wherein[[],] a non-single crystal silicon thin-film transistor, which includes a gate insulating film made up of at least one insulating film including silicon nitride, is formed using the amorphous silicon thin film.

Claim 9 (Currently Amended): The semiconductor device as defined in claim 1, wherein[[],] the single-crystal silicon substrate further includes a single-crystal silicon thin film and a the transistor formed using the single-crystal silicon thin film is arranged such that, from

an insulating substrate side, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order.

Claim 10 (Currently Amended): The semiconductor device as defined in claim 9, wherein[[,]] at least a part of the transistor formed using the single-crystal silicon thin film includes an interlayer insulating film and metal interconnects provided further on the single-crystal silicon thin film.

Claim 11 (Withdrawn): The semiconductor device as defined in claim 9 [[1]], wherein[[,]] the transistor formed using the single-crystal silicon thin film is arranged such that, from an insulating substrate side, an interlayer insulating film, a metal interconnects layer, an interlayer insulating film, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order, and in at least a part of the transistor, an interlayer insulating film and metal interconnects are further provided on the single-crystal silicon thin film.

Claim 12 (Currently Amended): The semiconductor device as defined in claim 1, wherein[[,]] the insulating substrate comprises is a high strain point glass including composed of an alkaline-earth alumino-borosilicate glass.

Claim 13 (Currently Amended): The semiconductor device as defined in claim 1, wherein[[,]] the insulating substrate comprises is composed of any one of a barium borosilicate glass, a barium alumino-borosilicate glass, an alkaline-earth alumino-borosilicate glass, a borosilicate glass, an alkaline-earth-zinc-lead-alumino-borosilicate glass, and an alkaline-earth-lead-alumino-borosilicate glass.

Claim 14 (Currently Amended): The semiconductor device as defined in claim 1, wherein[[,]] a difference of linear expansion between the insulating substrate and the single-crystal silicon substrate is about not more than 250ppm at temperatures in a range between substantially room temperatures and 600°C.

Claim 15 (Currently Amended): The semiconductor device as defined in claim 1, wherein[[,]] the insulating substrate comprises is composed of a high strain point glass whose strain point is not less than 500°C.

Claims 16 (Canceled).

Claim 17 (Withdrawn): A semiconductor device, comprising:
an insulating substrate having a surface on which an SiO₂ film is formed; and
a single-crystal silicon substrate bonded with the insulating substrate,
wherein, the single-crystal silicon substrate includes a porous silicon layer and a single-crystal silicon thin film formed on the porous silicon layer and has a surface which is on a single-crystal silicon thin film side with respect to the porous silicon layer and on which an SiO₂ film is formed,
the surface of the insulating substrate, where the SiO₂ film is formed, is bonded with the surface of the single-crystal silicon substrate, where the SiO₂ film is formed, and
a part of the single-crystal silicon substrate is separated at the porous silicon layer, and
the porous silicon layer is removed from a remaining part of the single-crystal silicon substrate,
the remaining part still being on the insulating substrate after the part is separated.

Claim 18 (Withdrawn): The semiconductor device as defined in claim 17, wherein, in different regions on the insulating substrate, the single-crystal silicon thin film and a non-single-crystal silicon thin film are formed.

Claim 19 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[,]] the single-crystal silicon thin film is ~~about~~ not more than about 70nm thick.

Claim 20 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[,]] the single-crystal silicon thin film is ~~about~~ not more than about 20nm thick.

Claim 21 (Withdrawn): The semiconductor device as defined in claim 18, wherein[[,]] the non-single-crystal silicon thin film comprises ~~is composed of~~ polycrystalline silicon.

Claim 22 (Withdrawn): The semiconductor device as defined in claim 18, wherein[[,]] the non-single-crystal silicon thin film comprises ~~is composed of~~ continuous grain silicon.

Claim 23 (Withdrawn): The semiconductor device as defined in claim 18, wherein[[,]] the non-single-crystal silicon thin film comprises ~~is composed of~~ amorphous silicon.

Claim 24 (Withdrawn): The semiconductor device as defined in claim 23, wherein[[,]] a non-single crystal silicon thin-film transistor, which includes a gate insulating film comprising ~~made up of~~ at least one insulating film including silicon nitride, is formed using the amorphous silicon thin film.

Claim 25 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[,]] ~~a~~ the transistor formed using the single-crystal silicon thin film is arranged such that, from an insulating substrate side, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order.

Claim 26 (Withdrawn): The semiconductor device as defined in claim 25, wherein[[,]] at least a part of the transistor formed using the single-crystal silicon thin film includes an interlayer insulating film and a metal interconnects layer provided further on the single-crystal silicon thin film.

Claim 27 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[,]] the transistor formed using the single-crystal silicon thin film is arranged such that, from an insulating substrate side, an interlayer insulating film, a metal interconnects layer, an interlayer insulating film, a gate electrode, a gate insulating film, and the single-crystal silicon

thin film are formed in this order, and in at least a part of the transistor, an interlayer insulating film and metal interconnects are further provided on the single-crystal silicon thin film.

Claim 28 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[],] the insulating substrate comprises is a high strain point glass including composed of an alkaline-earth alumino-borosilicate glass.

Claim 29 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[],] the insulating substrate comprises is composed of any one of a barium borosilicate glass, a barium alumino-borosilicate glass, an alkaline-earth alumino-borosilicate glass, a borosilicate glass, an alkaline-earth-zinc-lead-alumino-borosilicate glass, and an alkaline-earth-lead-alumino-borosilicate glass.

Claim 30 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[],] a difference of linear expansion between the insulating substrate and the single-crystal silicon substrate is about not more than 250ppm at temperatures in a range between substantially room temperatures and 600°C.

Claim 31 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[],] the insulating substrate comprises is composed of a high strain point glass whose strain point is not less than 500°C.

Claim 32 (Withdrawn): The semiconductor device as defined in claim 17, wherein[[],] on a substantially entire surface of the insulating substrate, the single-crystal silicon thin film is formed.

Claims 33-42 (Canceled).

Claim 43 (New): A semiconductor structure comprising:
an insulating substrate having a surface on which a first SiO₂ film is formed; and
a single-crystal silicon substrate bonded with the insulating substrate, wherein
the single-crystal silicon substrate includes a buried oxide layer, a hydrogen ion
implantation section in which a distribution of hydrogen ions peaks in the buried oxide layer, and
a single-crystal silicon thin film formed on the buried oxide layer, the single-crystal silicon
substrate having a surface which is on a single-crystal silicon thin film side with respect to the
buried oxide layer and on which a second SiO₂ film is formed, and
the surface of the insulating substrate on which the first SiO₂ film is formed is bonded
with the surface of the single-crystal silicon substrate on which the second SiO₂ film is formed.

Claim 44 (New): The semiconductor structure as defined in claim 43, wherein the
single-crystal silicon substrate is bonded to only a portion of the surface of the insulating
substrate on which the first SiO₂ film is formed.

Claim 45 (New): The semiconductor structure as defined in claim 43, wherein the
single-crystal silicon thin film has a thickness of not more than about 70nm.

Claim 46 (New): The semiconductor structure as defined in claim 43, wherein the
single-crystal silicon thin film has a thickness of not more than about 20nm.

Claim 47 (New): The semiconductor structure as defined in claim 43, wherein the
insulating substrate comprises a high strain point glass including an alkaline-earth
alumino-borosilicate glass.

Claim 48 (New): The semiconductor structure as defined in claim 43, wherein the
insulating substrate comprises any one of a barium borosilicate glass, a barium
alumino-borosilicate glass, an alkaline-earth alumino-borosilicate glass, a borosilicate glass, an
alkaline-earth-zinc-lead-alumino-borosilicate glass, and an
alkaline-earth-lead-alumino-borosilicate glass.

Claim 49 (New): The semiconductor structure as defined in claim 43, wherein a difference of linear expansion between the insulating substrate and the single-crystal silicon substrate is about not more than 250ppm at temperatures in a range between substantially room temperatures and 600°C.

Claim 50 (New): The semiconductor structure as defined in claim 43, wherein the insulating substrate comprises a high strain point glass whose strain point is not less than 500°C.

Claim 51 (New): A semiconductor device, comprising:
an insulating substrate having a surface on which a first SiO₂ film is formed; and
a single-crystal silicon substrate bonded to the insulating substrate, the single-crystal silicon substrate having a substantially uniform thickness and a substantially damage-free surface, wherein

the single-crystal silicon substrate includes a single-crystal silicon thin film and a second SiO₂ film formed on a surface thereof,

the surface of the insulating substrate on which the first SiO₂ film is formed is bonded with the surface of the single-crystal silicon substrate on which the second SiO₂ film is formed, and

the bonded single-crystal silicon substrate is disposed on only part of the surface of the single-crystal silicon substrate on which the second SiO₂ film is formed.

Claim 52 (New): The semiconductor device as defined in claim 51, further comprising:

transistor elements provided on the single-crystal silicon substrate.

Claim 53 (New): The semiconductor device as defined in claim 52, wherein the transistor elements are arranged such that, from an insulating substrate side, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order.